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REMARKS

Applicant has reviewed the Office Action mailed June 19, 2002, having a three-month period of response ending September 19, 2002, and acknowledges the Examiner's review of the specifications and drawings. In light of the above amendments and following remarks, Applicant respectfully requests reconsideration of the present application. The amendments and remarks presented herein are fully supported by the application and drawings as originally filed. No new matter has been added.

STATUS OF THE CLAIMS:

Claims 2, 3, 5, 6, 8, 9, 11-15, 17-31, 33-56, 58, 62, and 63 are pending in the application. New Claims 78-86 have been added. Claims 1, 4, 7, 10, 16, 32, 57, 59-61, and 64-77 have been cancelled without prejudice to pursue these claims and additional claims in a continuation application. Claims 2, 5, 6, 8, 9, 11, 15, 17, 20, 22, 24, 33-35, 37, 55, 58, 62, and 63 have been amended as set forth above.

ALLOWED AND ALLOWABLE CLAIMS:

The Examiner objects to Claims 22, 23, 38, and 63 as being dependent upon a rejected base claim, but indicates that they would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Claims 22, 38, and 63 have been amended in this manner. Claim 23 depends from the now independent Claim 22. As such, Applicant respectfully submits, Claims 22, 38, and 63, and their dependent claims, namely, Claims 2, 3, 5, 6, 8, 9, 11-15, 17-19, 20-21, 23-31, 33-37, 39-56, 58, 62, and 78-86, are now all in condition for allowance.

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CLAIM REJECTIONS UNDER 35 U.S.C. §102(b):

The Examiner rejects, under 35 U.S.C. §102(b), Claims 1, 4-12, 15, 16, 20, 21, 24-27, 32-34, 36, 40-42, 44, 47, 53, 57, 58, 64, 67-69, 72, 73, and 75 as being anticipated by Taleb et al. (FR 2,715,168); Claims 1-14, 15-21, 24-36, 39-45, 48-50, 53, 55-58, 64-70, and 72-75 as being anticipated by Yukimoto (JP 56-102,577); Claims 1, 4-7, 15, 16, 24-27, 32-34, 36, 37, 40-42, 48, 50, 53, 57, 58, 64, 67-69, 72, 73, and 75 as being anticipated by Sano (U.S. Patent No. 4,942,058).

In order to expedite prosecution of the present application and without acquiescing to the basis for these rejections, Applicant has canceled, without prejudice, Claims 1, 4, 7, 10, 16, 32, 57, and 64-75, such that the subject matter of these claims may be pursued in a continuation application in the future.

Also, Claims 2, 5, 6, 8, 9, 11, 15, 17, 20, 24, and 55 have been amended to depend from allowable Claim 22. Further, dependent Claims 33, 34, 37, 39, 40, 41, 43-45, 47, 48, 50, and 53 have been amended to depend from allowable Claim 38. Finally, dependent Claim 58 has been amended to depend from allowable Claim 63. Applicant respectfully submits that as a result of these amendments Claims 2, 3, 5, 6, 8, 9, 11-15, 17-21, 24-31, 33-37, 39-45, 47-50, 53, 55, and 56 are now in condition for allowance.

CLAIM REJECTIONS UNDER 35 U.S.C. §102(e):

The Examiner rejects Claims 1-12, 15-18, 20, 24-36, 39-43, 45, 46, 51, 53, 55, 57, 58, 60-62, 64-70, 72, 73, 75, and 77 under 35 U.S.C. §102(e) as being anticipated by Ui et al. (U.S. Patent No. 5,976,992).

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In order to expedite prosecution of the present application and without acquiescing to the basis for these rejections, Applicant has canceled, without prejudice, independent Claims 1, 4, 7, 10, 16, 32, 60, 64, 70, 72, 73, 75, and 77 such that the subject matter of the Claims may be pursued in a continuation application in the future.

Also, dependent Claims 2, 5, 6, 8, 9, 11, 15, 17, 20, 24 and 55 have been amended to depend from allowable Claim 22. Further, dependent Claims 33, 34, 39, 40, 41, 43, 45, 51, and 53 have been amended to depend from allowable Claim 38. Finally, dependent Claims 58 and 62 have been amended to depend from allowable Claim 63. Applicant respectfully submits that as a result of these amendments Claims 2, 3, 5, 6, 8, 9, 11, 12, 15, 17, 18, 20, 24-31, 33-36, 39-43, 45, 46, 51, 53, 55, 58, and 62 are now in condition for allowance.

CLAIM REJECTIONS UNDER 35 U.S.C. §103(a):

The Examiner rejects, under 35 U.S.C. §103(a), Claims 17, 18, 35, 37, 43, and 59-62 as unpatentable over Taleb; Claims 37, 59-62, and 71 as unpatentable over Yukimoto; Claims 9, 13, 14, 17, 18, 35, 43, and 49 as unpatentable over Sano; Claims 37, 56, 59, and 71 as unpatentable over Ui et al.; Claims 52, 54, 76, and 77 as unpatentable over any of the cited references.

In order to expedite prosecution of the present application, and without acquiescing to the basis for these rejections, Applicant has canceled, without prejudice, Claims 59-61, 71, 76, and 77 such that the subject matter of these claims may be pursued in a continuation application in the future.

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Also, Claims 9 and 17 have been amended to depend from allowable Claim 22. Further, dependent Claims 37, 43, and 52 have been amended to depend from allowable Claim 38. Finally, dependent Claim 62 has been amended to depend from allowable Claim 63. Applicant respectfully submits that as a result of these amendments Claims 9, 13, 14, 17, 18, 35, 37, 43, 49, 52, 54, 56, and 62 are now in condition for allowance.

CLAIM REJECTIONS UNDER 35 U.S.C. §112 ¶ 2:

The Examiner rejects Claims 49, 53-56, 58, and 62 under 35 U.S.C. §112 ¶ 2 as being indefinite. Specifically, Claim 49 is rejected as being confusing because of the term “hydrogen Freon,” Claim 53 is rejected as lacking proper antecedent basis for the term “said heater,” and Claims 58 and 62 are rejected for the term “magnetic.”

Applicant submits that the term “Freon” in Claim 49 is the trademark name for a series of fluorocarbon products containing fluorine (see attached from *Hawley's Condensed Chemical Dictionary* (Richard J. Lewis, Jr. ed., 14<sup>th</sup> ed. 2001), pgs. 515-16). Applicant has amended the term “hydrogen Freon” to just “Freon,” and is believed to overcome the rejection by the Examiner.

Applicant has amended Claim 55 to depend from Claim 30 to provide proper antecedent basis for the term “said heater.” As such, Applicant submits that Claims 53-56 are now in condition for allowance.

Finally, Claims 58 and 62 have been amended to correct the claim terminology to “electromagnetic.”

Accordingly, Applicant respectfully requests that the 35 U.S.C. §112 rejection of the claims be reconsidered and withdrawn.

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In light of the above amendments and remarks, Applicant respectfully requests reconsideration of the present application and a Notice of Allowance of all pending claims, namely Claims 2, 3, 5, 6, 8, 9, 11-15, 17-31, 33-56, 58, 62, 63, and 78-86.

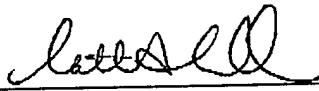
Should the Examiner have any questions or comments, the Examiner is invited to contact the undersigned at (616) 975-5506.

Respectfully submitted,

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Dated: September 19, 2002

  
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#### APPENDIX

#### IN THE CLAIMS:

Please cancel Claims 1, 4, 7, 10, 16, 32, 57, 59-61, and 64-77. Please amend Claims 2, 5, 6, 8, 9, 11, 15, 17, 20, 22, 24, 33, 34, 35, 37-55, 58, 62, and 63 as follows:

2. (Amended) The reactor according to Claim 22 [1], further comprising a heater for selectively heating the substrate in said processing chamber.

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5. (Amended) The reactor according to Claim 22 [4], wherein said plasma generator generates an electromagnetic field, said electromagnetic field for ionizing the gas into a gas plasma.

6. (Amended) The reactor according to Claim 22 [4], wherein said plasma generator ionizes said gas exteriorly of said processing chamber to isolate the substrate from said electromagnetic field.

8. (Amended) The reactor according to Claim 22 [7], wherein said gas injector [injection tube] includes a plurality of orifices through which the ionized gas is delivered into said processing chamber.

9. (Amended) The reactor according to Claim 22 [7], wherein said gas injector [injection tube] comprises a quartz tube.

11. (Amended) The reactor according to Claim 22 [10], wherein said gas injector [injection assembly] further includes a supply tube and an injection tube, said supply tube in communication with said injection tube, said supply tube for delivering gas to said injection tube, and said plasma generator for ionizing the gas into a gas plasma in said supply tube.

15. (Amended) The reactor according to Claim 22 [1], wherein said gas injector [injection assembly] includes at least two gas injection tubes, one of said gas injection tubes injecting a first gas in said processing chamber, and a second of said gas injection tubes injecting a second gas in said processing chamber, and said gas injector [injection assembly] ionizing at least one of said first and second gases into a gas plasma for injecting into said processing chamber.

17. (Amended) The reactor according to Claim 22 [16], wherein said plasma generator includes a generator tube and a coil inducing an electromagnetic field in said generator tube

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to ionize the gas flowing through the generator tube, and said generator tube directing the ionized gas to said gas injector for injecting into said processing chamber.

22. (Amended) A [The] reactor [according to Claim 16] for processing a semiconductor substrate, said reactor comprising:

a reactor housing defining a processing chamber and being adapted to support the substrate in said processing chamber;  
a plasma generator for ionizing at least one gas into a gas plasma; and  
at least one gas injector, said gas injector being adapted to inject the ionized gas into said processing chamber and onto the substrate supported therein for processing the substrate, wherein said housing includes a cover, said gas injector being supported in said cover.

24. (Amended) The reactor according to Claim 22 [16], wherein said at least one gas injector comprises at least two gas injectors for injecting at least one gas into said processing chamber.

33. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], wherein said ionizing a gas includes ionizing the gas into plasma.

34. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], wherein said ionizing includes applying an electromagnetic field to the gas.

35. (Amended) The method of processing a semiconductor substrate according to Claim 34, wherein said applying an electromagnetic field includes applying a radio frequency field to the gas.

37. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], further comprising rotating the substrate in the processing chamber during processing.

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38. (Amended) A [The] method of processing a semiconductor substrate [according to Claim 32] comprising:

providing a processing chamber;  
supporting the substrate in the processing chamber;  
ionizing a gas;  
injecting the ionized gas into the processing chamber onto the substrate for  
processing the semiconductor substrate; and  
further comprising measuring the emissivity of the substrate during processing.

39. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], further comprising heating the substrate during processing.

40. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], wherein said injecting the ionized gas includes directing the ionized gas onto at least a discrete portion of the substrate.

41. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], further comprising injecting a second gas into the chamber onto the substrate for processing the semiconductor substrate.

42. (Amended) The method of processing a semiconductor substrate according to Claim 41, wherein said injecting a second gas includes directing the second gas onto a discrete portion of the substrate.

43. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], further comprising selectively varying the flow of the ionized gas into the processing chamber.

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44. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], further comprises cleaning the substrate with a an ionized gas.

45. (Amended) The method of processing a semiconductor substrate according to Claim 38 [32], wherein said ionizing a gas includes ionizing silane.

46. (Amended) The method of processing a semiconductor substrate according to Claim 45, further including ionizing oxygen[,] and injecting the ionized silane and oxygen into the processing chamber.

47. (Amended) The method according to Claim 38 [32], wherein said ionizing includes ionizing nitrogen.

48. (Amended) The method according to Claim 38 [32], wherein said ionizing includes ionizing a fluorine containing gas.

49. (Amended) The method according to Claim 48, wherein said ionizing a fluorine containing gas includes ionizing one of [hydrogen] Freon, NF<sub>3</sub> and XeF<sub>2</sub>.

50. (Amended) The method according to Claim 38 [32], wherein said ionizing includes ionizing hydrogen.

51. (Amended) The method according to Claim 38 [32], wherein said ionizing includes ionizing oxygen.

52. (Amended) The method according to Claim 38 [32], wherein said ionizing includes ionizing silane and ammonia.

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53. (Amended) The method according to Claim 38 [32], further comprising injecting a reactant gas into the processing chamber.

54. (Amended) The method according to Claim 53, wherein said ionizing includes ionizing ammonia and injecting a reactant gas includes injecting silane.

55. (Amended) The reactor according to Claim 30 [53], wherein said heater housing is adapted for supporting the substrate in said processing chamber.

58. (Amended) The reactor according to Claim 63 [57], wherein said electromagnetic field generator comprises a plasma generator.

62. (Amended) The reactor according to Claim 63 [61], wherein said electromagnetic field generator includes a generator tube in communication with said supply tube, said electromagnetic field generator generating said electromagnetic field in said generator tube to ionize gas flowing into said supply tube into a gas plasma.

63. (Amended) A [The] reactor [according to Claim 61] for processing a semiconductor substrate, said reactor comprising:

a reactor housing defining a processing chamber and having a substrate support for supporting a substrate in said processing chamber; and  
a gas injection system including an electromagnetic field generator generating an electromagnetic field exteriorly of said processing chamber and for injecting at least one gas into said processing chamber, said gas injection system passing said at least one gas through said electromagnetic field generated by said electromagnetic field generator wherein said gas is ionized exteriorly of said processing chamber, said gas injection system injecting said ionized gas into said processing chamber and onto the substrate supported therein for processing the substrate, said gas injection system including a gas manifold, said substrate support being adapted to rotate said substrate in said processing chamber whereby said gas